

LANE MARKER MASKING SYSTEM

BACKGROUND OF THE INVENTION

5 1. TECHNICAL FIELD

The present invention generally relates to masking systems and, more particularly, to a lane marker masking system used and method for manufacturing the mask. Specifically, the present invention relates to a lane marker mask having an appearance that simulates the road surface immediately adjacent the location

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2. BACKGROUND INFORMATION

Road construction projects that divert traffic from an existing road use masks to hide the old lane markers from view while temporary lane markers are used to direct traffic onto the temporary path. In the past, the old lane markers were painted or removed from the existing road surface. In some situations, removal of the markers is undesirable because the markers are going to be used when the road is placed back in service. In these situations, masks have been used to hide the markers during the construction project. The masks are typically provided in a solid, uniform dark color without regard to the color of the road surface.

20 The color and texture of road surfaces greatly varies depending on the material of the road and the condition of the material. Even the same type of material can take on significantly different appearance after being exposed to different weather conditions over time. When the mask does not match the road appearance, the masks can act as undesirable visual distractions to a driver who is approaching the construction site. The art thus desires a lane marker mask that matches the road surface where the mask will be used.

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BRIEF SUMMARY OF THE INVENTION

30 One embodiment of the invention provides a mask for a lane marker that simulates the appearance of the road surface adjacent the lane marker. The invention provides a mask having an upper visible surface configured to simulate the road surface where the mask will be used. In one embodiment, the upper visible surface

of the mask is a printed photograph of the road surface adjacent the lane marker to be masked. The mask thus matches the color and texture of the road surface. Another embodiment of the invention provides a mask provided in a blend of colors that match the appearance of a road surface.

5 Another embodiment of the invention provides a method for making a mask for a lane marker. The method includes the steps of photographing the road surface adjacent the marker to be masked and printing the photograph onto a masking material. The printed photograph is then used to mask the lane markers so that the mask matches the road surface.

10 The invention further provides a lane marker masking system that includes a plurality of road surface patterns that are available on a web site or a printed catalog. The user who needs the masks may choose the closest pattern to the road surface to be masked and order the masks directly from the supplier. The user may also print the available patterns from the web site and take them to the road surface where the
15 masks will be used in order to determine the best match. The user may also photograph the road surface and compare the photograph with the catalog of patterns or with the patterns available online. The user may also send the photograph to the supplier and allow the supplier to match the pattern.

20 BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

FIG. 1 is a perspective view of a portion of a road construction project where lane markings must be masked.

FIG. 2 is an enlarged view of the encircled portion of FIG. 1.

FIG. 3 is a view similar to FIG. 2 showing a portion of the road surface being
25 photographed.

FIG. 4 is a schematic view of a camera, a computer system, and a printing system used to make the mask of the invention.

FIG. 5 is a perspective view of a mask made in accordance with the concepts of the present invention.

30 FIG. 6 is a section view taken along line 6-6 of FIG. 5.

FIG. 7 is a view similar to FIG. 2 showing masks being applied over the lane markers.

Similar numbers refer to similar parts through the specification.

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DETAILED DESCRIPTION OF THE INVENTION

The mask of the present invention is indicated generally by the numeral 10 in the accompanying drawings. Mask 10 is used to hide old lane markers 12 on a road surface 14 so that a driver approaching a construction site will not be visually distracted by masks 10. Mask 10 allows the driver to focus on the new lane markers 16 and safely pilot his vehicle through the construction site.

Mask 10 is fabricated by photographing road surface 14 with a camera 22. Camera 22 captures an image of road surface 14 adjacent markers 12 to be masked. In another embodiment of the invention, a book of road surfaces may be created by photographing a variety of road surfaces. In this case, the user would compare the book of road surfaces to road surface 14 adjacent markers 12 to find a close match. In another embodiment of the invention, the catalog of available mask patterns is published at a web site that is available to potential users of the masks. The user may then select the pattern by printing some available patterns and comparing them to the road surface. The user may alternatively photograph the road surface and compare the photograph to the available patterns.

Camera 22 may capture the image on film or in a digital format. When a digital camera is used, the image captured by camera 22 is processed by a computer 24. The image is then printed by a printer 26 that is adapted to print color images onto a masking material 28 to create mask 10. Printer 26 may use a screen printing technique, an electrostatic printing technique, an electrophotographic printing technique, an offset printing technique, a thermal ink jet printing technique, or a thermal mass transfer printing technique. Other printing methods may be continuous rotary screen printing or continuous flat bed printing.

One exemplary printer is a Zund brand UV Jet 215-C Printer having the following specifications: Four color piezo inkjet CMYK; Print speed: 75 to 140 square feet per hour; print resolution: 360 dpi; maximum print width: 84 inches; maximum

print thickness: 1.5 inches; continuous roll feed; vacuum fixation; continuous supply with individual low level warning; and on-line replenishing. Other suitable printers include: Roland DGA Corporation's FJ-540/CJ-540/SoljectSC-500; Mutoh's Toucan NxPro; Epson's Stylus Pro 10600 Scitex Vision's Scitex XL Jet; Graphitec's JX 2150 60"; NUR America's Nur Tempo; Vutek's Press Vu UV 80; Arizona's Arizona 500; and Sericol America's Inca Eagle 44.

Mask 10 is fabricated from a mask material 30 that is configured to be printed on by printer 26. Material 30 has a body 32 that may have an upper surface that is relatively smooth to allow the image 14A of road surface 14 to be printed onto the upper surface. Material 30 may also be embossed. An adhesive 34 may be provided on the lower surface of body 32 to allow mask 10 to be connected to road surface 14 over lane marker 12. Adhesive 34 may be a permanent or removable adhesive. In other embodiments of the invention, adhesive 34 is not connected to body 32 until the user is ready to install mask 10. In this embodiment, the user may place the adhesive onto road surface 14 and then place body 32 down onto the adhesive. When adhesive 34 is connected to the lower surface of body 32, a cover 38 may be provided to keep adhesive 34 clean until mask 10 is ready to be used. Adhesive 34 may be adapted to be applied in hot and cold weather. Adhesive 34 may also be configured to allow mask 10 to be rolled on itself or stacked with other masks 10. Adhesive 34 may be a permanent or removable adhesive. Removable adhesives allow mask 10 to be easily removed from the road and reused. A permanent adhesive allows mask 10 to remain in place for months or years and makes removal difficult.

If desired, adhesive 34 may be removed and mask 10 may be connected with other connectors such as mechanical fasteners like screws, nails, hook-and-loop and the like.

Material 30 is adapted to withstand outdoor road conditions and is resistant to water, salt, dirt, and oils. Material 30 may be fabricated from alpha-olefins such as polyethylene, polypropylene, and blends and copolymers thereof; ethylene-modified copolymers such as ethylene vinyl acetate, ethylene acrylic acid, ethylene methacrylic acid, ethylene methacrylate and blends and mixed polymers of these materials such as ethylene methylacrylate acrylic acid terpolymers, polyurethanes, poly(vinyl chloride)

and rubbery polymers such as ethylene propylene diene monomer terpolymer, rubber modified polyolefins and styrene butadiene rubbers. A particularly preferred material for the base layer 16 is a butadiene-acrylonitrile-polyvinyl chloride polymer.

In one embodiment of the invention, material 30 is 100% polyester plain weave.
5 The weight may fall in a range of 1.00 oz/sq. yard to 8.00 oz/sq. yard, preferably 3.25 oz/sq. yard. The material is finished with: Adhesion Promoter to Rubber (RFL Dip) OR Adhesion promoter to Rubber RFL Dip one side and white acrylic coating on other side.

Other possible substrates include: PVC/Nitrile blend; Carboxylated nitrile;
10 EPDM Blend; Embossed (any material listed above) base sheet raised to form a pattern; Foil; and Reinforced (any material listed that has been reinforced; for example, fabric and scrim or PVC / Nitrile and scrim).

Material 30 may be top coated if desired. Suitable top coats are Rust-Oleum 9700 system (two-component acrylic polyurethane), Pegatane Hydro, and adhesives
15 and adhesive laminates. Material 30 may include any of a variety of anti-skid particles known in the art. Examples include aluminum oxide, pumice, silica, quartz silica, crushed glass, etc. The top coating should be water-, oil-, and soil-resistant. One suitable material is a fluoro carbon resin with polymeric, hyperbranched dendrimers in a hydrocarbon matrix, cationic (available from Rudolf Chemical, Rucostar EEE, Ruco-
20 Couard AFR).

In the foregoing description, certain terms have been used for brevity, clearness, and understanding. No unnecessary limitations are to be implied therefrom beyond the requirement of the prior art because such terms are used for descriptive purposes and are intended to be broadly construed.

25 Moreover, the description and illustration of the invention is an example and the invention is not limited to the exact details shown or described.